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SECTION 32 PROGRAM: STREAMBANK EROSION CONTROL
EVALUATION AND DEMONSTRATION (U) ARMY ENGINEER WATERWAYS
EXPERIMENT STATION VICKSBURG MS S T MAYNORD OCT 77
WES-INSPECTION-1

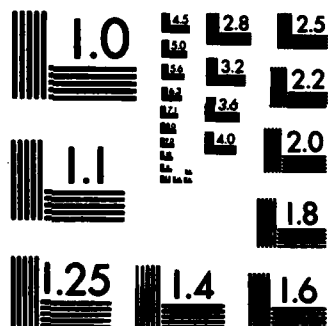
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SECTION 32 PROGRAM
STREAMBANK EROSION CONTROL
EVALUATION AND DEMONSTRATION
WORK UNIT 2 - FIELD INSPECTION

FIELD INSPECTION OF YAZOO RIVER
(VICKSBURG TO REDWOOD, MISSISSIPPI)

by

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October 1977
Inspection Report I

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1. A field inspection was conducted by the U. S. Army Engineer Waterways Experiment Station (WES) personnel on 10 November 1976 to observe types and causes of bank erosion on the Yazoo River near Vicksburg, Mississippi.) The following were in attendance:

Randy Oswalt	WESHS
Pete Saunders	WESHS
Hubert Smith	WESHS
Steve Maynard	WESHS
Bob Brown	WESHP
Dave Crouse	WESHE
Malcolm Keown	WESFE
Ed Perry	WESSE
Dave Patrick	WESSR

2. In the area that was inspected, the Yazoo River consists of a lower reach that has been straightened to improve navigation to the Vicksburg harbor and an upper reach without any cutoffs, straightening, or bank protective measures. The discharge in the Yazoo River has been reduced by the construction of four large reservoirs on the major tributaries in the headwaters of the Yazoo River. However, enough of the basin is still uncontrolled that the Yazoo is subject to frequent high stages that rise and fall rapidly. The Yazoo River is navigable throughout the full reach that was inspected although the level of navigation traffic on the river is light. The area along the river is unimproved and relatively uninhabited, and only a small amount of agriculture goes on adjacent to the river.

3. The inspection team started near the mouth of the Yazoo River at the Vicksburg waterfront. The team proceeded upstream in a WES boat observing intermittent bank erosion for 20 miles. Since the Yazoo is navigable, some erosion due to waves was anticipated and damage due to wave attack was observed (Photos 1 and 2). As can be seen in the photographs the damage is light and the total damage attributed to wave erosion along the river is low compared with other causes.

4. Bank erosion on the outside bank channel bends due to increased velocity attack and toe failure was the most frequent type of

erosion observed on the trip (Photos 3-7). In one case, a house is being threatened by recession of the outside bank of the channel bends (Photo 3). Most erosion was seen on the outside bank while the inside bank of the bends remained stable (Photos 5-7). The stable inside bank had side slopes of about 1V:3H (Photo 8).

5. The third type of bank erosion was observed at locations where the bank would drop straight down in places, sometimes up to 12 ft in height (Photos 9-10) and up to 30 ft back from the water's edge. This was probably caused by some mechanism which removed the material below the bank, allowing it to drop. This mechanism could have been velocity attack at the toe or high groundwater levels during low-flow periods which allowed flow from the bank into the river. This groundwater flow could have carried out the material which supported the upper bank.

6. It was the consensus of the inspection party that with present conditions in the reach of river inspected, there are no suitable sites for planned hydraulic research under Work Unit 3 of the Section 32 Program.

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Photo 1. Bank erosion due to wave action



Photo 2. Bank erosion due to wave action



Photo 3. Bank erosion on outside bank of channel bend



Photo 4. Bank erosion on outside bank of channel bend



Photo 5. Bank erosion on outside bank of channel bend with stable inside bank



Photo 6. Bank erosion on outside bank of channel bend with stable inside bank



Photo 7. Bank erosion on outside bank of channel bend with stable inside bank



Photo 8. Stable inside bank of channel bend



Photo 9. Bank failure due to erosion of material below upper bank



Photo 10. Bank failure due to erosion of material below upper bank

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